

FOR UNITED STATES LETTERS PATENT

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SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN THAT I, Pete Hesser, a citizen of the UNITED STATES OF AMERICA, have invented new and useful improvements in a TRASH CAN AND CLOSURE SYSTEM of which the following is a specification:

004021-9956260

## BACKGROUND OF THE INVENTION

### Field of the Invention

The present invention relates to a trash can and closure system and more particularly pertains to ensuring a secure rotational coupling between a trash can and its lid.

### Description of the Prior Art

The use of trash can of know design and configurations is known in the prior art. More specifically, trash can of know design and configurations previously devised and utilized for the purpose of securing the trash can and its lid are known to consist basically of familiar, expected, and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which has been developed for the fulfillment of countless objectives and requirements.

By way of example, United States Patent Number 4,666,054 to Jaicks discloses a storage container forming a compartment for storage garbage or edibles. United States Patent Number 5,004,114 to Terbrusch discloses a trash can container with a tightly secured cover. Lastly, United States Patent Number 5,373,958 to Bokmiller discloses a plastic blow molded container and lid combination.

While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not describe a trash can and closure system that allows ensuring a secure rotational coupling between a trash can and its lid through a 90 degree turn.

In this respect, the trash can and closure system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in doing so provides an apparatus primarily developed for the purpose of ensuring a secure rotational coupling between a trash can and its lid through a 90 degree turn.

Therefore, it can be appreciated that there exists a continuing need for a new and improved trash can and closure system which can be used for ensuring a secure rotational coupling between a trash can and its lid through a 90 degree turn. In this regard, the present invention substantially fulfills this need.

#### SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of trash can of know design and configurations now present in the prior art, the present invention provides an improved trash can and closure system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved trash can and closure system which has all the advantages of the prior art and none of the disadvantages.

To attain this, the present invention essentially comprises a new and improved trash can and closure system for ensuring a secure rotational coupling between a trash can and its lid through a 90-degree turn. The trash can contains a closed horizontal circular bottom with a first diameter of about 16.5 inches and an open horizontal circular top with of a second

diameter of about 19.5 inches. The second diameter is greater than the first diameter and includes a generally frusto conical side wall there between and a central vertical axis. The side wall includes a generally cylindrical upper extent extending downwardly from the top for about 3 inches. The trash can also includes a pair of diametrically opposed handles extending outwardly from the side wall slightly beneath the cylindrical portion. A pair of similarly configured threads are formed in the cylindrical portion. Each of the threads extends for about 180 degrees and each includes an input point and an output point vertically spaced with respect to each other and the axis by a distance of about two inches. The input point of each thread end spaced immediately above the output end of the other thread and with each thread. Each thread is angled between about 2.5 degrees and 4.5 degrees, preferably 3.6 degrees, with respect to a horizontal plane extending perpendicularly through the axis. Each thread contains a generally trapezoidal cross sectional configuration with its angled sides disposed one above the other and at an angle between about 15 degrees and 21 degrees, preferably about 18 degrees, from the plane. The trash can also includes a lid having a horizontal circular plate with a generally cylindrical side wall extending downwardly from the periphery of the plate for about 3 inches. A lifting handle is extended upwardly from adjacent to the center of the plate with a center aligned with the axis. The trash can includes a pair of

similarly configured threads formed in the cylindrical portion. Each of the threads includes extends for about 180 degrees and each an input point and an output point vertically spaced with respect to each other the axis by a distance of about two inches. The input point of each thread end spaced immediately beneath the output end of the other thread. Each thread is angled between about 2.5 degrees and 4.5 degrees, preferably 3.6 degrees with respect to a horizontal plane extending perpendicularly through the axis. Each thread includes a generally trapezoidal cross sectional configuration with its angled sides disposed one above the other. Each thread is angle between about 15 degrees and 21 degrees, preferably about 18 degrees, from the plane. The trash can include its threads and the lid is fabricated of generally rigid plastic selected from the class including polyvinyl chloride, and polyethylene. The trash can includes a thickness between about 0.060 inches and 0.100 inches, preferably about 0.080 inches, throughout the entire extent.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims attached.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of descriptions and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

It is therefore an object of the present invention to provide a new and improved trash can and closure system which has all of the advantages of the prior art trash can of known design and configurations and none of the disadvantages.

It is another object of the present invention to provide a new and improved trash can and closure system which may be easily and efficiently manufactured and marketed.

It is further object of the present invention to provide a new and improved trash can and closure system which is of durable and reliable constructions.

An even further object of the present invention is to provide a new and improved trash can and closure system which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such trash can and closure system economically available to the buying public.

Even still another object of the present invention is to provide a trash can and closure system for ensuring a secure rotational coupling between a trash can and its lid.

Lastly, it is an object of the present invention to provide a closure system for ensuring a secure rotational coupling between a container and its lid through a turn. The container includes a closed circular bottom with a first diameter and an open circular top with a second diameter. The second diameter is greater than the first diameter. The container includes a side wall there between and a central axis, the side wall having an upper extent extending downwardly from the top. The container also includes a pair of threads formed in the upper extent with each of the threads having an input point and an output point spaced with respect to each other. The container has a lid having a circular plate and with a side wall extending downwardly from the periphery of the plate and a lifting handle extending upwardly adjacent to the center of the plate. A pair of threads is formed in the side wall of the lid and each of the threads includes an input point and an output point spaced with respect

to each and with respect to a horizontal plane extending perpendicularly through the axis. The container including its threads and the lid including its threads being fabricated of generally rigid plastic.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a perspective view of the trash can and closure system in a close position.

Figure 2 is an enlarged side view of the closure lid.

Figure 3 is an elevational view taken along line 3-4 of Figure 1.

Figure 4 is top elevational view of the trash can as shown in the prior Figures.



Figure 5 is a cross sectional view taken along line 5-5 of Figure 1.

Figure 6 is perspective view of the trash can and closure system in an open position.

The same reference numerals refer to the same parts throughout the various Figures.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to Figure 1 thereof, the preferred embodiment of the new and improved trash can and closure system embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

The present invention, the trash can and closure system 10 is comprised of a plurality of components. Such components in their broadest context include a container, a pair of threads, a lid, a lifting handle, and a pair of handles. Such components are individually configured and correlated with respect to each other so as to attain the desired objective.

The trash can and closure system 10 is for ensuring a secure rotational coupling between a trash can and its lid through a 90 degree turn. The trash can 14 is preferably, in the preferred embodiment, a standard 32 gallon container with a height of about 32 inches. It preferably includes a closed horizontal circular bottom 16 with a first diameter of about 16.5 inches and an open horizontal circular top 18 with a second diameter of about 19.5 inches. The second diameter is greater than the first diameter

and includes a generally frusto conical side wall 20 there between and a central vertical axis. The side wall includes a generally cylindrical upper extent 22 extending downwardly from the top for about 3 inches.

The trash can also includes a pair of diametrically opposed handles 26 extending outwardly from the side wall slightly beneath the cylindrical portion.

A pair of similarly configured threads 30 are formed in the cylindrical portion. Each of the threads extends for about 180 degrees and each includes an input point 32 and an output point 34 vertically spaced with respect to each other and the axis by a distance of about two inches. The input point of each thread end is spaced immediately above the output end of the other thread. Each thread is angled between about 2.5 degrees and 4.5 degrees, preferably 3.6 degrees, with respect to a horizontal plane extending perpendicularly through the axis. Each thread contains a generally trapezoidal cross sectional configuration with its angled sides 36, 38 disposed one above the other and at an angle between about 15 degrees and 21 degrees, preferably about 18 degrees, from the plane. Each thread of the trash can is preferably about 1 inch deep and about 21 inch in height at its largest extent.

The trash can also includes a lid 42 having a horizontal circular plate 44 with a generally cylindrical side wall 46 extending downwardly from the periphery of the plate for about 3

inches. Each thread of the lid is preferably about 1 inch deep and about 1 inch in height at its largest extent.

A lifting handle 50 extends upwardly from adjacent to the center of the plate with a center aligned with the axis.

The lid of the system also includes a pair of similarly configured threads 54 formed in the cylindrical portion. Each of the threads extends about 180 degrees and each includes an input point 56 and an output point 58 vertically spaced with respect to each other the axis by a distance of about two inches. The input point of each thread end spaced immediately beneath the output end of the other thread. Each thread is angled between about 2.5 degrees and 4.5 degrees, preferably 3.6 degrees with respect to a horizontal plane extending perpendicularly through the axis. Each thread includes a generally trapezoidal cross sectional configuration with its angled sides disposed one above the other. Each thread is angle between about 15 degrees and 21 degrees, preferably about 18 degrees, from the plane. The trash can including its threads and the lid is fabricated of generally rigid plastic selected from the class including polyvinyl chloride, and polyethylene. The trash can includes a thickness between about 0.060 inches and 0.100 inches, preferably about 0.080 inches, throughout the entire extent.

As to the manner of usage and operation of the present invention, the same should be apparent from the above

description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

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